

**AMENDMENTS TO THE CLAIMS**

1-2 (Cancelled)

3. (Amended) The pulsing apparatus as recited in Claim 2-21 wherein said alternating current voltage is about 120 VAC<sub>RMS</sub>.

4- 7 (Cancelled)

8. (Amended) The pulsing apparatus as recited in Claim 7-22 wherein said on period includes about one percent of said cycles.

9. (Amended) The pulsing apparatus as recited in Claim 7-22 wherein said on period includes about two of said cycles and said off period includes about 178 of said cycles.

10- 20 (Cancelled)

21. (New) A pulsing apparatus for an electrical system having a nominal voltage and a rated voltage, said pulsing apparatus comprising:

first terminals structured to input a first voltage, said first voltage being about said nominal voltage;

means for generating a signal from said first voltage, said signal having a duty cycle;

means for transforming said first voltage to a second voltage having said duty cycle;

second terminals;

means for outputting a current at about said second voltage to said second terminals,

wherein said second voltage is greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;

wherein said duty cycle limits an average value of said current to less than about 6 mA; and

wherein said first terminals are structured to input an alternating current voltage as said first voltage.

22. (New) A pulsing apparatus for an electrical system having a nominal voltage and a rated voltage, said pulsing apparatus comprising:

first terminals structured to input a first voltage, said first voltage being about said nominal voltage;

means for generating a signal from said first voltage, said signal having a duty cycle;  
means for transforming said first voltage to a second voltage having said duty cycle;  
second terminals;  
means for outputting a current at about said second voltage to said second terminals,  
wherein said second voltage is greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;  
wherein said duty cycle limits an average value of said current to less than about 6 mA; and  
wherein said first voltage is an alternating current voltage having a plurality of cycles; and wherein said duty cycle includes an on period and an off period.

23. (New) A pulsing apparatus for an electrical system having a nominal voltage and a rated voltage, said pulsing apparatus comprising:

first terminals structured to input a first voltage, said first voltage being about said nominal voltage;  
means for generating a signal from said first voltage, said signal having a duty cycle;  
means for transforming said first voltage to a second voltage having said duty cycle;  
second terminals;  
means for outputting a current at about said second voltage to said second terminals,  
wherein said second voltage is greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;  
wherein said duty cycle limits an average value of said current to less than about 6 mA; and  
wherein said first voltage is about 120 VAC<sub>RMS</sub> and wherein said second voltage is about 480 VAC<sub>RMS</sub>.

24. (New) A pulsing apparatus for an electrical system having a nominal voltage and a rated voltage, said pulsing apparatus comprising:

first terminals structured to input a first voltage, said first voltage being about said nominal voltage;

means for generating a signal from said first voltage, said signal having a duty cycle;

means for transforming said first voltage to a second voltage having said duty cycle;

second terminals;

means for outputting a current at about said second voltage to said second terminals,

wherein said second voltage is greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;

wherein said duty cycle limits an average value of said current to less than about 6 mA;

wherein said means for outputting comprises a resistor electrically connected in series with a capacitor, with the series combination of said resistor and said capacitor being electrically connected between said means for transforming and one of said second terminals; and

wherein said means for outputting further comprises a second resistor electrically connected in parallel with said capacitor.

25. (New) A method for identifying an arcing fault in an electrical system having a nominal voltage and a rated voltage, said method comprising the steps of:

inputting a first voltage, said first voltage being about said nominal voltage;

generating a signal from said first voltage, said signal having a duty cycle;

transforming said first voltage to a second voltage having said duty cycle, said second voltage being greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;

outputting a current at about said second voltage to said electrical system;

employing said duty cycle to limit an average value of said current to less than about 6 mA; and

further comprising inputting as said first voltage an alternating current voltage.

26. (New) A method for identifying an arcing fault in an electrical system having a nominal voltage and a rated voltage, said method comprising the steps of:

inputting a first voltage, said first voltage being about said nominal voltage;

generating a signal from said first voltage, said signal having a duty cycle;

transforming said first voltage to a second voltage having said duty cycle, said second voltage being greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;

outputting a current at about said second voltage to said electrical system;

employing said duty cycle to limit an average value of said current to less than about 6 mA;

further comprising inputting as said first voltage about 120 VAC<sub>RMS</sub>;

and

outputting as said second voltage about 480 VAC<sub>RMS</sub>.

27. (New) A method for identifying an arcing fault in an electrical system having a nominal voltage and a rated voltage, said method comprising the steps of:

inputting a first voltage, said first voltage being about said nominal voltage;

generating a signal from said first voltage, said signal having a duty cycle;

transforming said first voltage to a second voltage having said duty cycle, said second voltage being greater than said first voltage and less than said rated voltage, said second voltage being adapted to identify an arcing fault in said electrical system;

outputting a current at about said second voltage to said electrical system;

employing said duty cycle to limit an average value of said current to less than about 6 mA;

further comprising transforming said first voltage to about 480 VAC<sub>RMS</sub> ;

and

limiting said average value of said current to about 2.8 mA.